

Protective nature of mangiferin on oxidative stress and antioxidant status in tissues of streptozotocin-induced diabetic rats

Abstract

Oxidative stress plays an important role in the progression of diabetes complications. The aim of the present study was to investigate the beneficial effect of oral administration of mangiferin in streptozotocin (STZ)-induced diabetic rats by measuring the oxidative indicators in liver and kidney as well as the ameliorative properties. Administration of mangiferin to diabetic rats significantly decreased blood glucose and increased plasma insulin levels. The activities of antioxidant enzymes superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx) and level of reduced glutathione (GSH) were significantly ($P < 0.05$) decreased while increases in the levels of lipidperoxidation (LPO) markers were observed in liver and kidney tissues of diabetic control rats as compared to normal control rats. Oral treatment with mangiferin (40 mg/kg b.wt/day) for a period of 30 days showed significant ameliorative effects on all the biochemical and oxidative parameters studied. Diabetic rats treated with mangiferin restored almost normal architecture of liver and kidney tissues, which was confirmed by histopathological examination. These results indicated that mangiferin has potential ameliorative effects in addition to its antidiabetic effect in experimentally induced diabetic rats.

Keyword: Mangiferin; Oxidative stress; Antioxidant; Streptozotocin-induced diabetic rats